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The following hypotheses were investigated: (1) Negro children have lower academic achievement than whites. (2) the ego variables of sense personal control and willingness to delay gratification are significantly related to academic achievement and (3) Negro children score significantly lower on both ego variables. Subjects included 237 eighth graders (182 white and 55 Negro) and 321 eleventh-graders (288 white and 33 Negro). They responded by "agreeing" or "disagreeing" to items on the Personal Control Scale and Delay of Gratification scale. Results showed that hypotheses one and three were fully supported, while hypothesis two received partial support. However, the ego variables appeared to influence academic achievement largely, but not completely, through their association with intelligence. The racial differences on the ego variables were interpreted as contributing to a vicious cycle, with the Negro child's intellectual and psychological handicaps interacting with each other to increase the amount of deficit. (Author/LS)

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Racial Differences in Indices of Ego Functioning Relevant to Academic Achievement

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RACIAL DIFFERENCES IN INDICES OF EGO FUNCTIONING RELEVANT TO ACADEMIC ACHIEVEMENT

Institute for Juvenile Research

Elise E. Lessing

A. Introduction

The increased emphasis upon science and technology in American society has maximized the importance of educational attainment as an access route to social mobility (14, 16). The disadvantaged position of the Negro in regard to educational attainment has been abundantly documented (4). The voluminous literature regarding the lower mean intelligence test scores earned by Negroes in comparison with whites [see review by Pettigrew (21)] has been used by some writers to explain the Negro's low educational achievement in terms of innately deficient mental endowment (28). On the other hand, careful studies have shown that the Negro's tested IQ covaries with the same factors as achievement test scores (10, 21). Consequently other investigators have interpreted the Negro's comparatively low mean IQ as simply one more manifestation of his inadequate level of intellectual achievement rather than as a causal factor (4, p. 292). The interpretive problem arises because status on the intervening variable of "intelligence" or intellectual capacity can be inferred only from performance, that is, "achievement" on some specific task. This dilemma is usually dealt with by attempting to infer capacity only from tasks of such a nature that solving them successfully depends minimally on prior training for one of two reasons. Either the content of the task is such that all children being tested have been equally exposed (e.g. to language and quantitative concepts) or equally unexposed (e.g. to

geometric matrices). It is then reasoned that given equal opportunity, or equal lack of opportunity to learn, variations in performance will chiefly reflect differences in capacity. Obviously, to the extent that one cannot assume equal opportunity to learn and to the extent that intended measures of ability are actually dependent upon specific prior training, empirical distinctions between ability and achievement indices will be obscured. However, the present author would regard the distinction between capacity and achievement as conceptually useful. The fact that variation in scores on ability measures has often left much variation in scores on achievement measures unaccounted for has stimulated many studies of non-intellectual predictors of achievement (e.g. 14, 31).

The issues and research relating to academic achievement can be usefully conceptualized within the theoretical framework of ego psychology. Hartmann (12, pp. 86, 114-115) has described the ego as carrying out its basic role as the organ of control and adaptation by means of a variety of ego functions, including delay of impulse discharge, reality-testing, perception including self-perception, and realistic problem solving resulting in mastery of the environment. Recently, Hirsch (13) has included level of ego development as well as level of general intelligence in his list of major factors influencing academic achievement. For the purpose of predicting achievement, Hummel and his collaborators (14, 31) have used responses on instruments carefully selected to provide an evaluation of the extent to which the subject holds attitudes, values, and self-perceptions

indicating that the basic ego functions described by Hartmann (12) are being performed adaptively. Sense of personal control, with the implicit rejection of irresponsible fatalism, and willingness to delay impulse gratification for the sake of long range goals were interpreted as adaptive ego attitudes with particular relevance to academic achievement (31). The ego psychology conceptual model seems broad enough to encompass the three conceptual foci which Crandall, Katkovsky and Preston (5) identify as the major empirical approaches to the study of achievement. These three specific conceptual foci are: a) achievement motivation expressed in fantasy, as exemplified by the work of McClelland and his associates (19); b) manifest anxiety, studied by Sarason and his associates (27); and c) perceived locus of control over events, studied by Bialer (2) and Rotter and his associates (26). These concepts and methodologies, as well as the more inclusive ego psychology approach, have increasingly been used to identify personality factors which might interfere with the Negro's capacity to reveal the full scope of his intellectual potential and utilize it to achieve academically [see review by Katz (15)].

Rosen (24) and Mingione (20) found that Negro children earned lower mean need achievement scores than their white counterparts. Battle & Rotter (1) found that the lower-class Negro children were significantly more likely to attribute the locus of control to external forces than were middle-class white or Negro subjects. However, in the two studies just cited, the demonstration of racial differences in regard to the personality variables was not accompanied by evidence that the personality

variables were related to achievement in the particular samples studied. In the course of a nationwide survey, Coleman (4) had several thousand ninth- and twelfth-grade pupils respond to three questionnaire items designed to measure their sense of control over their own destiny. The Negro students expressed a significantly lower sense of personal control (4, pp. 288-290). Moreover, this attitudinal variable accounted for more variance in relation to the achievement test criterion than any other factor, though family background and school environment were also used as possible achievement predictors (4, pp. 319-325). However, the effect of IQ was not controlled. Racial differences in regard to capacity to delay gratification have not been given much attention in relationship to racial differences in academic achievement. However, Buterbaugh (3) found that Negro adolescent delinquents surpassed white delinquents on one measure of capacity to delay impulse gratification and were inferior on another.

The purpose of the present study was to investigate racial differences in regard to two indices of adaptive ego functioning shown by previous research to be related to academic achievement, with particular emphasis upon controlling other important variables such as IQ and social class. The specific hypotheses to be explored were: 1) Negro students have significantly lower academic achievement than white students. 2) the ego attitudes of sense of personal control and willingness to delay gratification are significantly related to academic achievement, and 3) Negro children score significantly lower on measures of both of these indices of adaptive ego functioning.

B. Method

1. Subjects

In the course of a large-scale study of time perspective (18), over a thousand pupils were tested in the fifth, eighth, and eleventh grades of twelve schools located in three suburbs adjacent to Chicago. The suburbs included one working-class factory community. Subjects were tested from September, 1963, through January, 1964, in classroom groups selected with the goal of obtaining, insofar as possible, equal numbers of middle-class and working-class subjects at three intellectual levels: average, below-average, and above-average. For the present study, only protocols from subjects in grades 8 and 11 were utilized because only in these two grades were all Negro subjects tested in the same integrated schools which provided the majority of the white subjects. There were a total of 237 eighth-graders (182 white and 55 Negro) and 321 eleventh-graders (288 white and 33 Negro) who met the following criteria: child's IQ as recorded in the school files was between 70 and 129; child had at least a fourth-grade reading level; the occupation of the father or principal wage earner in the child's family was either in the school files or obtainable from the child in specific enough form to permit classifying the child as being of middle-class or working-class background; and the child completed two seven-item scales measuring sense of personal control and willingness to delay impulse gratification.

2. Instruments

The Personal Control Scale,[1] used to measure sense of personal control over one's own life, consisted of the following seven items

from Strodtbeck's PC (Personal Control) Scale, an earlier version of which was introduced as the V-Scale (29):

1. Planning only makes a person unhappy since your plans hardly ever work out anyhow.
2. When a man is born, the success he's going to have is already in the cards, so he might as well accept it and not fight against it.
3. Nowadays, with world conditions the way they are, the wise person lives for today and lets tomorrow take care of itself.
4. Most people with low incomes can't do very much about it.
5. When you get right down to it, being a success in life is really up to yourself alone.
6. If a man is born into a poor family, he nevertheless has a good chance to become a comfortable, middle-income person.
7. The most important things that happen to people are:
   a) The result of circumstances beyond their control.
   b) More the result of their own efforts.

Subjects responded by checking either "Agree" or "Disagree" for each statement except the last. The score was the number of items which the subject answered in the direction of expressing greater sense of personal mastery.

The Delay of Gratification Scale consisted of the following seven items which the author composed mainly by recasting stories devised by Buterbaugh (3) into the form of statements with which the subject could agree or disagree:

1. If wearing ugly braces would make my teeth look prettier later on, I would put up with looking awful for a year or two.
2. If I could have either $1000 right now or $1200 given out in payments of $100 a month for a year, I'd rather have the $1000 to spend right now.
3. If I had a savings bond that would be worth much more money ten years from now, I'd wait the ten years to cash it in even if I had to get along on very little money until then.
4. I know I can make more money later on if I finish my schooling. Still, if I were too poor to dress as well as most of the other kids, I'd quit school as soon as possible and get whatever job I could.
5. I'd rather be a little less healthy than miss the fun of eating hamburgers, hot dogs, candy and pop for most of my lunches and snacks.
6. If my parents said that for my eighteenth birthday they would either buy me a new car or pay my way through four years of college, I'd choose the new car for my birthday present.
7. If I could join only one of two social clubs, I would join the one that would take me in the soonest even if it wasn't the club I liked the best.

A pilot study was conducted in one of the schools which later provided subjects for the experimental sample. When 46 fifth-graders and 52 eighth-

graders were tested twice with a month between testing sessions, test-retest reliability coefficients of .26 and .64 were obtained for the Personal Control Scale, while coefficients of .56 and .43 were obtained for the Delay of Gratification Scale. The two scales are of modest reliability at the grade level utilized in the present study. In both the pilot and the major study, the two seven-item scales were administered as a single questionnaire with the delay of gratification items constituting the even-numbered items.

3. Statistical Analysis

Three sets of statistical analyses were performed with the data from grades 8 and 11 being analyzed separately. First, analyses of variance and covariance were performed with sex and race as the independent variables, academic grade point average (GPA) as the dependent variable, and IQ as the covariate. It was unfortunately necessary to utilize IQ scores derived from several different group tests of intelligence previously administered by school personnel. Thus the analyses involving IQ have a somewhat wider than optimal margin of error. However, there is no reason to suspect systematic bias relevant to the hypotheses being tested since Negro and white students within each school system were given the same intelligence test. Each child's GPA was computed by assigning numerical equivalents of 0 through 5 to academic grades ranging from F to A. Grades in gym, art, music, glee club, and other part-credit, recreational subjects were omitted from the GPA computations. However, grades in vocational subjects were included since many eleventh-graders were enrolled in a vocational curriculum.

In the second set of analyses, sense of personal control and willingness to delay gratification served, in turn, as independent variables, with sex as the second independent variable, IQ as the covariate, and GPA as the dependent variable. For this latter set of analyses, scores on the two ego function variables were trichotomized insofar as possible. However, all cases with the same numerical score were assigned to the same classification (i.e. "high," "medium," or "low") on the particular scale involved.

Finally, racial comparisons on the two ego variables were made by means of two-way analyses of variance and covariance with sex and race serving as the independent variables and IQ as the covariate. In view of the triangular distribution of scores on the two personality measures and the correlation between means and variances across subject subgroups, log transformed scores were utilized as the dependent variable in the analyses just described. These racial comparisons were repeated with social class controlled by limiting the analyses to subjects of working-class background. There were too few Negro middle-class subjects to permit social class to be used in a factorial design. Subjects were classified as being of either middle-class or working-class background on the basis of the occupation of the principal wage earner. Occupation was coded from the U.S. Census Alphabetical Index of Occupations and Industries (30), with all occupations at or below "Craftsmen, foremen and kindred workers" being classfied as working class. All statistical computations were done on an IBM 1620 computer[2] by means of programs based on Winer's (32, pp. 594-605) formulas for unweighted means analyses with unequal cell sizes.

C. Results

The results of the racial comparisons in regard to academic achievement are presented in Tables 1 and 2. Hypothesis One was supported. The Negro eighth-graders and eleventh-graders earned a significantly lower mean IQ and lower GPA than their white classmates. At the eleventh-grade level, the Negro mean GPA was still significantly lower than that of the white students even after the use of a covariance adjustment to control for the effects of IQ. However, the proportion of variance accounted for by race was never large, even when no allowance was made for racial differences in IQ. Since the between-subjects variation in IQ accounted for less than half of the variation in academic achievement at both grade levels, it was evident that IQ and academic achievement in terms of GPA could be empirically differentiated as separable phenomena. It thus appeared empirically (as well as theoretically) important that achievement predictors other than IQ should be explored, with special effort to determine whether non-intellective predictors accounted for variance in achievement over and above their possible correlation with IQ.

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Insert Table 1 and 2 about here

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A summary of the analyses of variance and covariance with GPA as the dependent variable and the ego attitudes as independent variables appears in Table 3. Hypothesis Two was partially supported. Sense of Personal Control was significantly and positively related to GPA in both grades, with the ego variable contributing variance independent of its association

with intelligence at the eighth-grade level. Willingness to Delay Gratification was significantly and positively related to GPA only in Grade 8. Moreover, while the Pearson product moment correlation between Willingness to Delay Gratification and IQ was only .23 ($p < .01$) for the total sample of 558 cases, WDG influenced academic achievement solely by means of the variance shared with IQ. The relationship between GPA and Willingness to Delay Gratification found in the eighth-grade may have missed replication at the eleventh-grade level because of the greater homogeneity of the older sample in regard to WDG. The variance of 1.14 found in the eleventh-grade sample is significantly lower than the variance of 1.67 found in the eighth-grade group ($F = 1.47$; p for two-tailed test $< .05$). Since the eleventh-graders are past the age of compulsory school attendance, individuals who are disinclined to accept the delay of impulse gratification inherent in conforming to academic discipline can drop out of school. There was no significant difference between the eighth and eleventh grades in regard to variance on the Sense of Personal Control Scale.

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Insert Table 3 about here

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A summary of the analyses of variance and covariance with race and sex as the independent variables and Sense of Personal Control as the dependent variable is presented in Table 4, while parallel analyses with scores on the Delay of Gratification Scale as the dependent variable are presented in Table 5. Hypothesis Three was supported. The Negro students in grades 8 and 11 showed significantly less sense of personal control

over their own lives than their white classmates. Moreover, this racial difference remained significant when the comparison was limited to subjects of working-class background. Even when the effect of IQ was controlled, the racial difference failed to reach statistical significance only in the case of the eighth-graders of working-class origin. However, while the racial differences were quite consistent, the racial factor *per se* accounted for only a small proportion of the variance in scores on the Personal Control Scale.

The Delay of Gratification Scale likewise revealed a consistent pattern of racial differences with Negro students expressing less willingness to defer immediate impulse gratification. However, the racial differences in regard to this ego function are entirely attributable to racial differences in mean IQ level; all of the racial differences disappear when the effects of IQ are controlled by the covariance technique.

Since the two-way analyses of variance performed separately for each grade yielded no statistically significant sex differences in regard to either ego function variable, two-way analyses of variance with race and grade as independent variables were performed to test for the significance of developmental trends. As inspection of the means reported in Table 6 would suggest, the eleventh-graders were significantly higher than the eighth-graders on the Sense of Personal Control Scale ($F = 7.47$; $p < .01$) while the difference between grades was not statistically significant on the Delay of Gratification Scale ($F = .62$; $p > .05$). Developmental trends did not differ in the two races: the interaction of race and grade was not statistically significant on either scale.

D. Discussion

Two of the three hypotheses tested were fully supported, while one received partial support. The results of this study extend and suggest clarifying interpretations of previous findings of achievement-relevant differences between races. The finding that Negro students earned a lower mean IQ and lower mean GPA than white students is consistent with a large body of previous research [Katz (15), Pettigrew (21), Shuey (28)]. The evidence that IQ and grade point average had only a modest amount of variance in common suggested that IQ should be controlled in achievement-prediction studies rather than gratuitously assumed to be interchangeable with the achievement criterion. For example, it is likely that the importance of the sense of personal control variable in relation to achievement was over-estimated in Coleman's (4, p. 321) study because of the failure to include IQ as a control variable. In the present study, the proportion of variance in achievement accounted for by sense of personal control dropped markedly when the effect of variations in IQ was removed by the covariance technique.

The work of Davis and his associates (8, pp. 256-290; 9, pp. 252-264) focussed attention upon the need for controlling social class in studies of racial differences. One would thus avoid identifying as "Negro behavior" those patterns of conduct generally characteristic of the lower class, to which most, but not all, Negroes belong. However, these investigators noted that Negro children are subjected to subcultural isolation and to distinctive caste pressures over and beyond those attributable to their generally lower class status (6, 7, 8, 11). It is consequently under-

standable that the working-class Negro subjects of this study showed less confidence in their ability to control their own destiny and less willingness to delay gratification for the sake of future goals than white working-class subjects. These findings are consistent with Mingione's (20) findings of differences in need achievement between Negro and white school children, all of whom were of low socio-economic status. The trend in Battle and Rotter's (1) study was similar although in their small sample the difference between lower-class whites and lower-class Negroes in regard to perceived locus of control over life events did not reach statistical significance.

The over-all findings of the present study raise the same difficult questions that have been explored by previous investigators of racial differences in regard to personality and achievement. A sense of control over events in one's life and willingness to defer gratification tend to serve both as cause and effect. Thus, successful control tends to create the expectation of future successful control. This expectation has sufficient incentive value to serve as a stimulus for additional actions designed to master the environment. Similarly, attainment of a valuable deferred reward tends to reinforce subsequent delay of gratification. The self-perception of being able to control events in one's life and the attitude of willingness to delay gratification for the sake of future gain are multiply-determined, personal-cultural attributes. They evolve from an individual's experiences in resolving private, intrapsychic and interpersonal conflicts and also from his experiences in assimilating cultural norms which can exert an influence over and beyond the vicissitudes of individual egos. As Rose (23), Lefcourt and Ladwig (17), and Coleman (4)

have indicated, racial discrimination with the attendant denial of rewards for individual achievement or self-discipline, facilitate the development of a sense of futility and powerlessness, and a perception of the self as at the mercy of external forces. These attitudes, which evolve as individualized personal reactions and are reinforced by being part of the ethos of the Negro subculture, engender a self-defeating pattern whereby the Negro child declines to try to achieve even what is possible. The child is then realistically even less able to control his own life and has even less reason to delay impulse gratification for the sake of future rewards that he does not have the skills to obtain.

The problem of how to break this vicious cycle is an extremely difficult one. The ego variables investigated in the present study appeared to influence academic achievement largely through their association with intelligence, while intelligence contributed a large proportion of independent variance to level of achievement. One would, therefore, be inclined to suggest a cognitive focus for any remedial efforts directed at reducing the gap between Negroes and whites in regard to achievement. However, it has been demonstrated that measured IQ, the main intellectual factor in achievement, is itself influenced by non-intellectual variables such as the child's general adjustment, teachers' expectancies, etc. (22, 25). It is therefore evident that remedial intervention at multiple points is indicated. The multiple social, economic, and family problems confronting the Negro child create multiple handicaps, both intellectual and psychic, which then interact with each other to increase the amount of deficit.

E. Summary

This study was designed to investigate the following hypotheses: 1) Negro children have lower academic achievement than whites, 2) the ego variables of sense of personal control and willingness to delay gratification are significantly related to academic achievement, and 3) Negro children score significantly lower on both ego variables. Subjects were 237 eighth-graders (182 white and 55 Negro) and 321 eleventh-graders (288 white and 33 Negro). Hypotheses One and Three were fully supported while Hypothesis Two received partial support. However, the ego variables appeared to influence academic achievement largely, but not completely, through their association with intelligence. The racial differences on the ego variables were interpreted as contributing to a vicious cycle, with the Negro child's intellectual and psychological handicaps interacting with each other to increase the amount of deficit.

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Footnotes

1. The Personal Control Scale was identified as the Personal Responsibility Scale in the report of the larger time perspective study, in the course of which the present data was collected. See listing 18 under "References."

2. The author wishes to express appreciation to Aldona Vaitkus, who performed the statistical computations, and to Susan Zagorin who assisted in the data analysis.

Table 1

Mean GPA By Race and Grade Level

Grade	Race	N	Mean GPA	Mean IQ	t[a]
Eighth	White	182	2.26	105.94	
	Negro	55	1.94	95.87	5.73**
Eleventh	White	288	2.19	107.50	
	Negro	33	1.25	91.00	6.71**

[a]The values of t were obtained in tests of the significance of the difference between racial groups regarding mean IQ.

**$p < .01$

TABLE 2

Analyses Of Variance And Covariance With Race And Sex As Independent Variables, IQ As Covariate, And GPA As Dependent Variable

Grade	Analysis of:	Source	df	SS	F	Variance accounted for:[a]
Eighth	Variance					
		Race	1	4.08	6.51*	3%
		Sex	1	5.80	9.27**	4%
		R X S	1	.01	.01	
		Within Ss	233	145.99		
	Covariance					
		Race	1	.50	1.30	
		Sex	1	5.81	15.02**	4%
		R X S	1	.01	.02	
		IQ	1	59.79	154.52**	38%
		Within Ss	232	89.77		
Eleventh	Variance					
		Race	1	23.23	38.76**	11%
		Sex	1	.13	.22	
		R X S	1	.11	.19	
		Within Ss	317	190.02		

(Table 2 continued on next page).

TABLE 2 (continued)

Covariance					
	Race	1	3.86	9.51**	2%
	Sex	1	.14	.36	
	R X S	1	.00	.00	
	IQ	1	81.18	199.93**	38%
	Within Ss	316	128.31		

[a] Recorded only for significant F values.

* p <.05

** p <.01

TABLE 3

Summary Of Results Of Analyses Of Variance And Covariance With GPA As The Dependent Variable, Two Ego Function Measures, Each Serving In Combination With Sex As The Independent Variables, And IQ As Covariate.

Grade	Type of analysis	df	Sense of Personal Control F	Delay of Gratification F
Eighth	Variance	2/231	16.59** (12%)	7.18** (5%)
	Covariance	2/230	4.48* (2%)	.03
Eleventh	Variance	2/315	7.68** (3%)	2.44
	Covariance	2/314	.21	.01

Note: The F values for the effect of sex were significant in the two analyses of variance and the two analyses of covariance performed on data from Grade Eight, but not in analyses for Grade Eleven. No interactions yielded significant F values.

* $p < .05$

** $p < .01$

TABLE 4

Summary of Results of Analyses of Variance and Covariance with Race and Sex as the Independent Variables, IQ as the Covariate, and Log Transformed Scores on the Sense of Personal Control Scale as Dependent Variable

Grade and sample	Type of analysis	Source	df	F	Variance accounted for:[a]
Eighth: total sample	Variance	Race	1/233	20.75**	8%
	Covariance	Race	1/232	5.38*	2%
		IQ	1/232	65.29**	21%
Eighth: working-class sample	Variance	Race	1/132	11.79**	8%
	Covariance	Race	1/131	3.60	
		IQ	1/131	39.20**	22%
Eleventh: total sample	Variance	Race	1/317	21.49**	6%
	Covariance	Race	1/316	6.68*	2%
		IQ	1/316	56.84**	15%
Eleventh: working-class sample	Variance	Race	1/183	16.59**	8%
	Covariance	Race	1/182	6.76*	3%
		IQ	1/182	34.84**	15%

Note: No F values for the effect of sex nor for the interaction between race and sex were statistically significant.

[a]Recorded only for significant F values.

* $p < .05$

** $p < .01$

TABLE 5

Summary of Results of Analyses of Variance and Covariance with Race and Sex as the Independent Variables, IQ as the Covariate, and Log Transformed Scores on the Delay of Gratification Scale as the Dependent Variable

Grade and sample	Type of analysis	Source	df	F	Variance accounted for:[a]
Eighth: total sample	Variance	Race	1/233	6.94**	3%
	Covariance	Race	1/232	.07	
		IQ	1/232	58.23**	20%
Eighth: working-class sample	Variance	Race	1/132	1.55	
	Covariance	Race	1/131	.20	
		IQ	1/131	33.24**	20%
Eleventh: total sample	Variance	Race	1/317	7.36**	2%
	Covariance	Race	1/316	2.36	
		IQ	1/316	15.46**	5%
Eleventh: working-class sample	Variance	Race	1/183	4.64*	2%
	Covariance	Race	1/182	1.97	
		IQ	1/182	6.83**	4%

Note: No F values for the effect of sex nor for the interaction between race and sex were statistically significant.

[a] Recorded only for significant F values.

* $p < .05$.

** $p < .01$.

Table 6

Mean Scores on Two Indices of Ego Functioning by Grade, Race, and Social Class

Grade and sample	Race	N	Sense of personal control	Delay of gratification
Eighth: total sample	White	182	5.42	5.82
	Negro	55	4.34	5.16
Eighth: working-class sample	White	92	5.12	5.47
	Negro	44	4.05	5.03
Eleventh: total sample	White	288	6.02	5.89
	Negro	33	4.87	5.29
Eleventh: working-class sample	White	163	5.91	5.73
	Negro	24	4.73	5.15

Note.--The means recorded in this table are the means for the groups representing the main effects in the unweighted means analyses of variance described in the text and in Table 5. The mean recorded for each racial group, for example, is the average of the means for the two cells (males and females) composing the group.